

# (12) United States Patent

# Hoshtanar

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## (54) METHODS AND APPARATUS TO DETECT A CONDUCTIVE OBJECT

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See application file for complete search history.

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#### (57)ABSTRACT

A method and apparatus scan a first capacitive sensor element that is located in a first scan region for a presence of a conductive object and then scan a second capacitive sensor element that is located in a second scan region for the presence of the conductive object. The scan of the first capacitive sensor element includes applying a ground voltage to a ground element through the second capacitive sensor element, the ground element located in the first scan region.

# 20 Claims, 14 Drawing Sheets

